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A New Species of *Taosa* (Hemiptera: Dictyopharidae) From South America Associated With Water Hyacinth

ANA M. DE REMES LENICOV¹ AND M. CRISTINA HERNÁNDEZ²

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ABSTRACT A new species of *Taosa* (Hemiptera: Dictyopharidae) is described. All the stages were collected on the aquatic weed *Eichhornia crassipes* (Martius) Solms-Laubach (Pontederiaceae) at several localities on the Paraguay River in Argentina, and in the upper Amazon River in Perú. *Taosa* (*Cuernavaca*) *longula* Remes Lenicov sp. nov. is distinguished by the following coloration pattern and morphological features: uniform green coloration with a pair of lateral small dark spots on mesonotum, vertex subquadrate with a closed triangular facet well defined on apex, and a long anal segment; in male, the shape and relative length of parameres, the tubular aedeagus with a pair of ventral spinose processes recurved upward; in the female, the length, shape and denticulation of the first valvulae of the ovipositor. To facilitate the comparison of the new species with the morphologically allied, *Taosa inexacta* (Walker) and *Taosa herbida* (Walker 1851), a key is included. Further information on reproductive and feeding behavior, host plants, and geographical distribution of this species are given.

RESUMEN Se describe una nueva especie en el género *Taosa* (Hemiptera: Dictyopharidae). Los especímenes, en todos sus estadios de desarrollo, fueron colectados sobre la maleza acuática *Eichhornia crassipes* (Martius) Solms-Laubach (Pontederiaceae) en varias localidades sobre el río Paraguay, Argentina, y en el alto río Amazonas, Perú. *Taosa* (*Cuernavaca*) *longula* Remes Lenicov sp. nov. Se distingue por la combinación de las siguientes características: coloración verde uniforme con un par de manchas negras a ambos lados del mesonoto, vertex subcuadrado con la faceta triangular bien definida sobre el margen apical, y el segmento anal largo; en los machos, por la forma suboval y largo relativo de los parameros, el edeago tubular con un par de procesos espinosos ventrales ligeramente recurvados hacia arriba; en las hembras, por la longitud, forma y denticulación de la valva I del ovipositor. Se incluye una clave para facilitar la comparación de la nueva especie con dos especies con morfología similar, *Taosa inexacta* (Walker) and *Taosa herbida* (Walker 1851). Además, Se presenta información sobre el comportamiento reproductivo y de alimentación, plantas hospedadoras, y su distribución geográfica.

KEY WORDS *Taosa* (*Cuernavaca*) *longula* sp. nov., *Taosa inexacta*, *Taosa herbida*, *Eichhornia crassipes*, Neotropical

In the past 40 yr, there have been extensive surveys in South America for insects associated with water hyacinth, *Eichhornia crassipes* (Martius) Solms-Laubach (Pontederiaceae), with the potential to serve as biocontrol agents. Several species of planthoppers associated with water hyacinth, most of them of the genus *Taosa* (Hemiptera: Fulgoromorpha: Dictyopharidae) were found. In early surveys of water hyacinth, Bennett and Zwolfer (1968) mentioned a common species in Trinidad, Surinam, and Brazil and determined it as *Taosa inexacta* (Walker). Center et al. (2002) also

cited this species in the upper Amazon in association with water hyacinth. However, our studies of those specimens revealed the presence of a different species of *Taosa*.

The information on the bioecological aspects of planthoppers is scarce and mainly concerning species of economic importance, e.g., those of Delphacidae (O'Brien and Wilson 1985; Denno and Roderick 1990) and several studies on *Megamelus scutellaris* Berg as biocontrol of water hyacinth (Sosa et al. 2005, 2007; Mariani et al. 2007) and in Dictyopharidae (Wilson and Wheeler 2005). Some biological information on *Taosa inexacta* and its fidelity to the Pontederiaceae was obtained by Crutwell (1973); other associations between *Taosa* species and host plants are only known from the original descriptions: *Taosa herbida* (Walker 1851) on Liberian coffee (*Coffea* spp.) in Trinidad and

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Table 1. Sites, host plants, and number of specimens of *Taosa* (*Cuernavaca*) *longula* sp. nov.

Country	Site	Way points	Host plants	Date	♂	♀
Argentina	Formosa Province, Herradura	26° 30'44"S; 58° 17'05" W	<i>Eichhornia crassipes</i>	15-XI-2007	2	5
Argentina	Formosa Province, Chuqui Cue	26° 29'08" S; 58° 16'39" W	<i>Eichhornia crassipes</i>	15-XI-2007	1	0
Argentina	Formosa Province, Herradura	26° 30'44" S; 58°17'05" W	<i>Eichhornia crassipes</i>	XII-2007	1	0
Argentina	Formosa Province, Herradura	26° 30'44"S; 58° 17'05" W	<i>Eichhornia crassipes</i>	11-II-2004	3	3
Peru	Iquitos, Peruru Cocha	04° 16'51" S; 73° 17'08" W	<i>Eichhornia crassipes</i>	29-IV-1999	4	2
Peru	Iquitos, Tipashira Cocha	04° 18'45" S;73°19'32" W	<i>Eichhornia crassipes</i>	30-IV-1999	2	0
Peru	Iquitos, Montoya Cocha	04° 31'00" S;73° 32'23" W	<i>Eichhornia crassipes</i>	03-V-1999	3	4
Peru	Iquitos, Montoya Cocha	04° 31'00" S;73° 32'23" W	<i>Eichhornia crassipes</i>	03-V-1999	1	1
Peru	Iquitos, Montoya Cocha	04° 31'00" S;73° 32'23" W	<i>Eichhornia crassipes</i>	03-V-1999	0	2
Peru	Iquitos, Montoya Cocha	04° 31'00" S;73° 32'23" W	<i>Pontederia rotundifolia</i>	03-V-1999	0	1
Peru	Iquitos, Morana	N/A	?	14-XI-2001	0	1
Peru	Iquitos, Tacunare/Nacita	N/A	<i>Eichhornia crassipes</i>	15-XI-2001	2	3
Peru	?	N/A	<i>Eichhornia crassipes</i>	15-XI-2001	2	2
Peru	Iquitos, Tacunare	N/A	<i>Eichhornia crassipes</i>	15-XI-2001	1	0

N/A, not applicable.

Taosa paraherbida Muir (1931) (= *T. inexacta*) on sugarcane (*Saccharum* spp.) in a locality that remains uncertain (Fennah 1945).

The genus *Taosa* was established by Distant (1906) with *Flata suturalis* Germar, 1830, as the type. Subsequently 16 additional species were placed in the genus (Metcalf 1946, Fennah 1945). Among the diagnostic characteristics of this genus, Muir (1931) highlighted the following: the short-head with the vertex usually broader than long or as long as broad, not projected or only slightly in front of the eyes and the well defined lateral areolet at the point where the transverse carina joins the lateral margin; front tricarinate, expanded ventrad; shape and spinulation of the post tibiae-tarsus, the coloration and a few features involving male genitalia. Fennah (1944) added as other characteristics, the wing venation, the pattern of the aedeagal structure, the shape of the first and third valvulae of the ovipositor and the sclerotized pattern on the bursa copulatrix.

Metcalf (1945) stated that *Cuernavaca*, established by Kirkaldy (1913) as a new subgenus of *Dictyophara*, should be retained as a subgenus of *Taosa* to include specimens "with crown about as long as wide, definitely projecting in front of the eyes." Fennah (1945) in the revision of some South American Fulgoroidea, considered the subgenus *Cuernavaca* a synonym of *Taosa*, emphasizing the taxonomic value of the first valvulae of the ovipositor. Synave (1969) included 14 species of *Taosa* in a key, providing descriptions and taxonomic remarks based on the coloration and external morphology and on the male genitalia in some of them.

All of the 17 species of *Taosa* are known from Central and South America. Only *Taosa sororcula* (Berg 1879) and *T. herbida* have been recorded from Argentina (Metcalf 1946).

The current study, based on specimens collected on *E. crassipes* in South America—northeastern Argentina and eastern Perú—describes a new species of *Taosa* with biological information, host plants, and its distribution in South America. In addition, a key to distinguish the new species from the morphologically allied *T. inexacta* and *T. herbida* is included.

Material was collected by researchers from the USDA-ARS South American Biological Control Laboratory (SABCL), Argentina, and the USDA-ARS Invasive Plant Research Laboratory (IPRL), Florida, USA.

Materials and Methods

Specimens Examined. Adults specimens were field collected by sweeping and hand collection on *E. crassipes*, *Pontederia cordata* L., and *Pontederia rotundifolia* L. In addition, eggs laid in water hyacinth and nymphs were collected at several sites in Argentina and incubated until adults emerged. All the specimens were fixed in 70% ethanol.

Collection Sites. In Argentina individuals were collected from water hyacinth in the Paraguay River in Formosa Province. The specimens from Perú were gathered in the upper Amazon River near the confluence of the Ucayali and Marañón rivers (Table 1).

Morphological Studies. Series of male and female specimens, most of them have emerged from the same group of eggs, were considered as types and used for the descriptions and illustrations. Specimens were killed with 95% ethyl ether to maintain their coloration. Both male and female genitalia were examined in water after boiling in 10% KOH, and finally fixed—for temporary microscopic examination and illustration—in Faure's medium (distilled water, 50 g; gum arabic (clear crystals), 50 g; chloral hydrate, 200 g; and glycerin, 20 g).

The female gonads were prepared using Bouin liquid (picric acid, 75%; formalin, 25%; and acetic acid, 5%) and preserved in 10 ml of formalin, 5 ml of acetic acid, 50 ml of 96% ethyl alcohol, and 35 ml of distilled water). The measurements reported were taken from 10 specimens of each sex, including the type series and are given in millimeters. The illustrations were made by using a Sony digital camera; those of *T. herbida* are from Fennah, 1945. Terminology follows Fennah, (1944) and Ashe (1985) for external morphology and male genitalia, Yang and Yang (1986) for frontal carinae, and Bourgoin (1990, 1993) for female genitalia. A key to distinguish the new species from those mor-

phologically allied was made based on the key of Synave (1969) (pp. 2-4). Type and nontype materials housed in the following collections were examined: BMNH, United Kingdom, and Museo de Ciencias Naturales de La Plata (MLPA), Argentina. Abbreviations used are as follows. L., total length; B.L., body length; t.l., tegmina length; ov. l., ovipositor length; and gVIII l., gonapophysis VIII length.

Laboratory Observations. Biological observations were recorded in the field and in laboratory conditions at the SABCL with material collected in Herradura, Formosa Province, Argentina. Specimens were obtained from eggs oviposited in water hyacinth petioles in the field. The petioles were incubated in plastic containers (30 by 40 cm) with wet paper in the bottom. The newly emerged nymphs were transferred to small cages (60 by 60 by 60 cm) over water hyacinth plants or to cylindrical containers with cap (8 cm in diameter; 5 cm in height) over cut leaves; the cages were maintained in greenhouse and the containers at 25°C in rearing chamber (photoperiod of 12:12 [L:D] h) until adults emerged. To determine the development time 25 newly emerged nymphs were reared individually in the cylindrical containers with cap.

Results

Key to Distinguish *T. (Cuernavaca) longula* sp. nov. From Related Species

The proposed key comprises the new species and the morphologically related species *T. inexacta* and *T. herbida*, both included by Metcalf (1946) in the subgenus *Cuernavaca*. Based on cephalic characteristics, *T. longula* was also placed in that subgenus.

The characteristics corresponding to the male of *T. herbida* and *T. inexacta* were taken from Muir (1931) and Fennah (1944).

Taosa (Cuernavaca) longula sp. nov. keys to couplet "5" in Synave's key as follows:

- Vertex projecting in front of the eyes is at least of one third of its length.
- 1- Uniformly green with a pair of small dark spots on each side of mesonotum; male with parameres shorter than anal segment, sub-oval (Fig. 2a and b); females with elongated anal segment, 5 times its width; long and straight gonapophysis VIII with a row of strong bifurcate teeth on dorsal margin (Fig. 3a and b) *T. longula* sp. nov.
- Green with orange to brown dark marks on basal frons; male with parameres longer than anal segment, elongate; females with short anal segment 1.5 times width; short and sinuate gonapophysis VIII, not surpassing anal segment, with conical dorsal teeth in one or two rows 0.2
- 2- Frons with broad longitudinal orange band on submedian carinae in basal half; vertex as long as broad across base; parameres elongate, dor-

sal angular margin on basal half, upper tooth longer than the lower tooth, with straightly forward position (Fig. 5a); gonapophysis VIII with a row of eight triangular teeth (Fig. 5b).

. . . . *T. inexacta* (Walker) (= *T. paraherbida* Muir)

- Frons with longitudinal orange band, blackish at base; vertex broader than long across base; parameres elongate, dorsal margin concavely sloping toward blunt apex; gonapophysis VIII with two unequal rows of teeth (Fennah, 1945: pl. 12, figs. 293 and 297). *T. herbida* (Walker).

***Taosa (Cuernavaca) longula* Remes Lenicov sp. nov. (Fig. 1a-e)**

Diagnosis. Ground color uniformly green with a pair of small dark spots on each side of mesonotum.

Length of vertex subequal or slightly longer than wide at base, vertex subquadrate obtusely rounded toward frons. Vertex separated from the frons by a conspicuous transverse carina with a triangular facet well defined and enclosed on each side by the lateral carinae. Frons strongly expanded in apical one third. Male anal segment surpassing apices of parameres; in lateral view with dorsal and ventral margin straight; parameres subtriangular with subequal-sized teeth, dorsal margin regularly convex; aedeagus shorter than parameres at rest, with two ventral apical spinose processes recurved upward, and two feeble truncate dorsal processes emerging abruptly cephalad at apex. Female with elongate ovipositor; gonapophysis VIII (valvulae 1) thick and straight, with a row of nine strong bifurcate teeth on dorso-external edge at apex.

Description. Male and females macropterous.

Holotype Male. L., 12.30; B.L., 8.46; t.l., 10. Coloration: ground color uniformly green, turning to yellow-brownish when dried or conserved in 70% alcohol, with a pair of small darkish pigmented spot on each side of mesonotum; tegmina and wings hyaline, with veins tinged green, pterostigma yellowish.

Head (Fig. 1d and e), including compound eyes, 2.8 times the length of the vertex at base; length of vertex subequal or slightly longer than wide at base; vertex subquadrate obtusely rounded toward frons, apical margin convex, projecting approximately one half beyond the eyes. Vertex separated from the frons by a conspicuous transverse carina with a large triangular facet well defined, and closed on each side by the lateral carinae. Frons in the midline 1.4 times longer than wide near the base; frons with lateral margins slightly parallel in the basal half, strongly expanded at apical one third, widest part little below the antennae; carina distinct; the submedian quite close to each other, subparallel, curved and meeting at base, obscure near apex. Clypeus longer than wide at base (1.7:1), fronto clypeal suture inverted V shape, with the weak submedian carinae joined in a

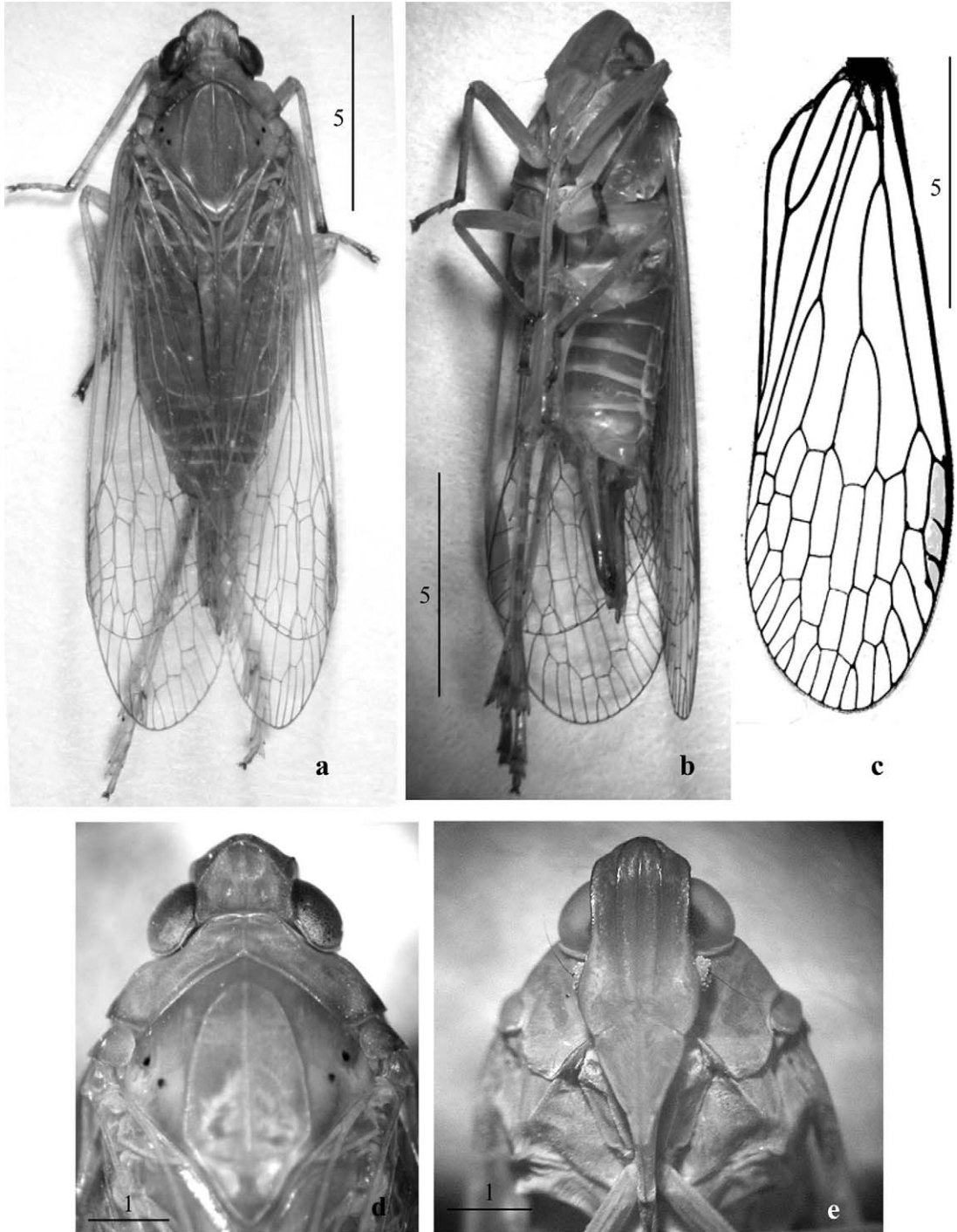


Fig. 1. *Taosa (Cuernavaca) longula* sp. nov. Habitus. (a) Female, dorsal view. (b) Fem., latero-ventral view. (c) Tegmina, right. (d) Head and thorax, dorsal. (e) Same, ventral.

median carina. Rostrum reaching anterior margin of metacoxae, subapical segment longer than apical (1.2:1).

Pronotum wider than head (1.4:1), a little shorter than vertex at midline; carinae distinct, lateral pair

slightly curved laterad. Mesonotum medially more than four times the length of the pronotum, carinae distinct, lateral carinae almost straight, laterals and median extinct at the scutellum. Tegmina extending beyond the abdomen, semihyaline, with stigma three-

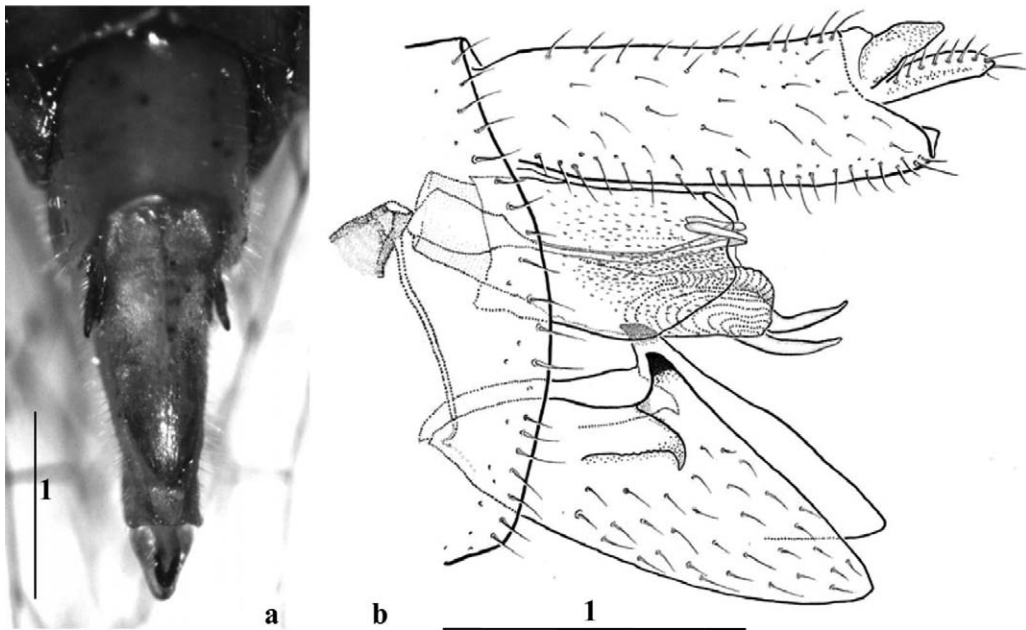


Fig. 2. *Taosa (Cuernavaca) longula* sp. nov. Male. (a) Terminalia ventral. (b) Genito-anal complex, left-lateral.

celled. Post basitarsus as long as posttarsal segments II and III together, apically with seven (2+5) spines; apex of posttarsal segment II with four spines in a row.

Tymbal not distinctive, with the second abdominal tergum shallowly convex and narrow, transversally oval central plate uniformly sclerotized, apodemes of second abdominal sternite slender, surpassing the segment length.

Terminalia: anal segment large, surpassing length of parameres; dorsal and ventral margins straight, the latter longer in lateral view; apex obliquely truncate (Fig. 2a and b). Parameres subtriangular, dorsal margin regularly convex, gradually narrowing toward apex; with two subequal teeth, upper tooth curved dorsad and forward; lower tooth, located laterally and immediately below first one, curved in opposite direction; ventral margin slightly sinuous; length of parameres 3 times their width at base of upper tooth. Aedeagus with a pair of long inflatable membranous tubes, each one ending in a ventro-apical spinose process slightly upward recurved; phallobase tubular with two slender blunt dorsal processes extending posteriorly below theca and folding cephalad in their one fourth apical. In lateral view, ventro-apical spinose processes of aedeagus reaching apices of parameres at rest.

Measurements. L., 12.20 ± 0.04 ; B.L., 8.80 ± 0.05 ; t.l., 10.78 ± 0.01 ($n = 10$).

Female. L., 14.61; B.L., 12.30; t.l., 11.92; ov.l., 4.4; g.VIII l., 3.36. Similar to the male in body morphology and coloration (Fig. 1).

Terminalia: ovipositor long, almost reaching the tip of the large anal segment. Gonocoxa VIII (=first valvifer) triangular, vertically placed; gonapophysis VIII (first valvulae) strong, 5 times longer than wide in the middle, in

lateral view, both straight dorsal and ventral margins narrowing sharply in the apical one fourth, which is strongly serrate, bearing two proximal small acute cephalad directed teeth followed by a row of nine strong bifurcate teeth on dorso-external margin of sclerotized plate (Fig. 3a and b); gonapophysis IX (second valvulae) elongate, strongly curving upward toward apex, upper margin slightly concave, lower margin rather convex; gonoplaque ("lateral styles" of Fennah) elongate (Fig. 3c and d), both lobes sub equal in length, as long as anal segment, subparallel sided, ventral lobe lightly expanded in apical half, apex rounded, with numerous short strong spines arranged in the low edge in apical half and a tuft of five or six long rigid hairs at tip; dorsal lobe more slender, with the truncate and minutely serrate apex strongly reflected inward.

Bursa copulatrix ornamented with sclerotized oval areas each bearing three short peg-like processes, directed toward the interior of the bursa, each one pustulate distally (Fig. 4). Anal segment slightly longer than gonapophysis VIII.

Measurements. L., 14.29 ± 0.05 ; B.L., 11.77 ± 0.06 ; t.l., 11.6 ± 0.01 ; ov.l., 4.4; g.VIII l., 3.36 ($n = 10$).

Etymology. The specific name comes from the Latin word (adj.) "*longula*" in reference to the relatively large anal segment and ovipositor in the female.

Remarks. *Taosa (Cuernavaca) longula* sp. nov. seems to be most similar to *T. inexacta* (Walker, 1858) (= *Taosa paraherbida* Muir, 1931). The examination of the type of *Dictyophara inexacta* Walker, the female paratype of *T. paraherbida*, and a male bearing Muir's identification label in the BMNH collection showed that *T. (C.) longula* sp. nov. differs in the absence of the reddish brown marks at the base of the frons, the slightly round shaped margin of the vertex with a large

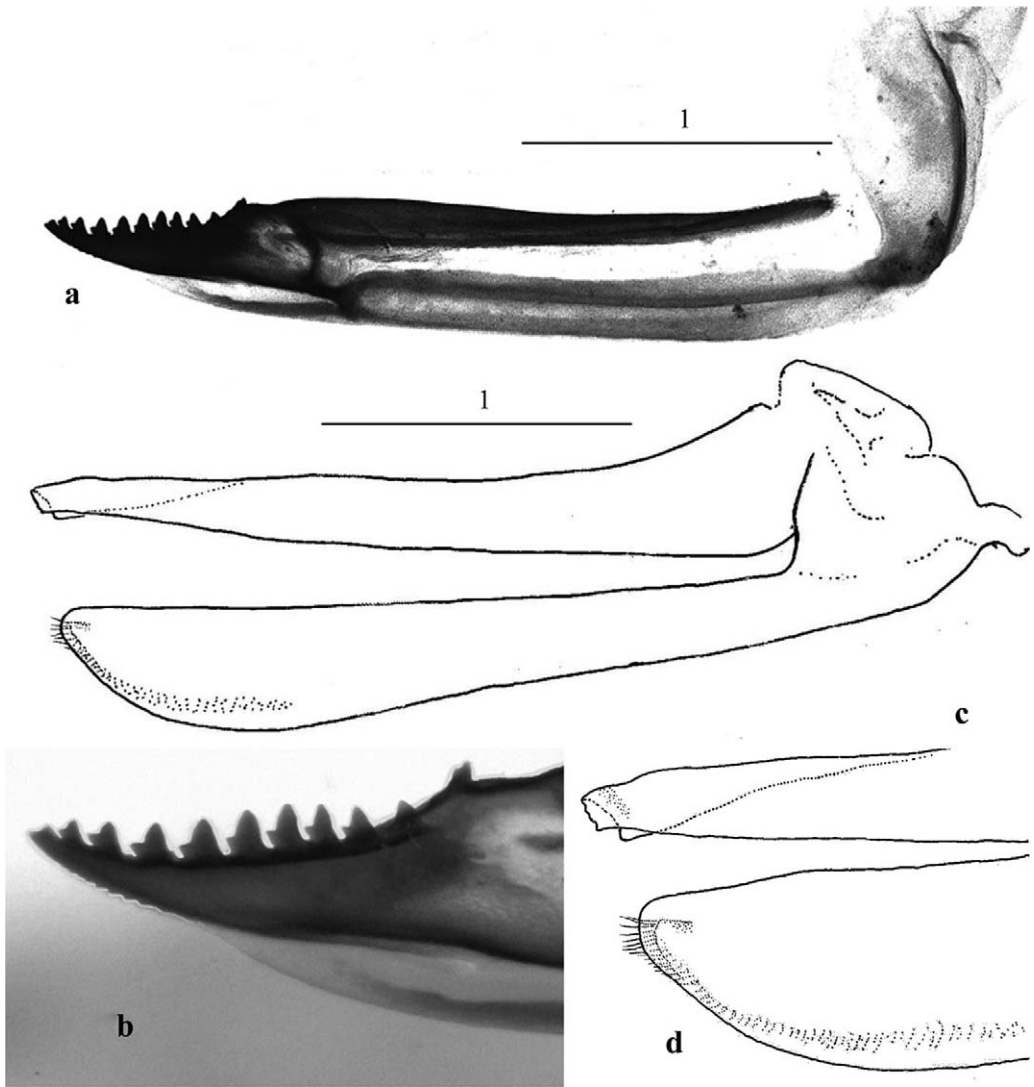


Fig. 3. *Taosa (Cuernavaca) longula* sp. nov. Female. (a) Gonapophysis VIII. (b) Apex of gonapophysis VIII. (c) Gonoplaça. (d) Apex of gonoplaça.

triangular facet well defined and enclosed on each side by the lateral carinae, the strongly expanded frons in the apical one third, the suboval shape of the parameres with subequal-sized teeth, the shape and length of the aedeagal processes in male, and the straight and longer gonapophysis VIII with a row of nine bifurcate teeth on the apical one fourth. In both sexes the shape of the anal segment with dorsal and ventral margins subparallel and its length is another distinguishing feature.

The examination of the female type of *Taosa amazonica* Fennah, 1945—the other species with an unusually long anal segment and ovipositor—showed remarkable differences in the shape of the vertex, the absence of the distinctive dark marks on head, pronotum, mesonotum and tegmina, the longer female anal

segment (1.5 times the hind tarsus), and the straight and longer gonapophysis VIII with less teeth on dorsal border but larger and stronger.

Type Material. Holotype: 1 ♂ ARGENTINA, Formosa, Herradura 11-II-2004, on *Eichornia crassipes*, Hernandez & Sacco, col. Paratypes: 4 ♀♀ and 3 ♂♂, same data; 1 ♀ Peru, Iquitos, Pururu Cocha 29-IV-1999 on *E. crassipes*, Cordo col; 2 ♂♂, Iquitos, Tipashira Cocha 30-IV-1999, on *E. crassipes*, Cordo col.

Additional Material (in Alcohol). 8 ♀♀ and 3 ♂♂, Argentina, reared at SABCL, Hurlingham, Buenos Aires, 20-VI-2007, on *E. crassipes*, Hernandez & Sacco, leg; 2 ♀♀ Peru, Iquitos, Pururu Cocha 29-IV-1999 on *E. crassipes*, Cordo col; 3 ♀♀ and 3 ♂♂ Perú, Iquitos, Montoya Cocha, 03-V-1999, on *E. crassipes*, Cordo leg; 1 ♀ Perú, Morana, 14-XI-2001, Cordo col.



Fig. 4. *Taosa (Cuernavaca) longula* sp. nov. Female. Bursa copulatrix ornamentation.

The type and nontype specimens are deposited in MLPA collection; 2 ♀ and 2 ♂ Paratypes, Formosa, Herradura 11-II-2004, on *Eichornia crassipes*, Hernandez & Sacco, col. are bequeathed to the USNM (USA) and BMNH (London), respectively.

Material Examined at the BMNH. 1 ♀ *Dictyophara inexacta* Walker (type) Colombia; 1 ♀ *Taosa paraherbida* Muir (Paratype) Blairmont B.G. Sept 1923. F. X. Williams col.; 1 ♂ *Taosa paraherbida*, Colombia, Lake Sapatozoa region, Chiriguana District, VIII-IX-1924; C. Allen. F. Muir, det.; 1 ♀ *Taosa inexacta* (Walker), Guyarmare, Trinidad, on *E. crassipes*, Dic.1961, M.S.K. Ghauri, det. (1968); 1 ♂ Guyarmare, Trinidad, on *E. crassipes*, Dic.1967.; 1 ♀ *Dichoptera herbida* Walker (type) Venezuela; 1 ♂ *Taosa herbida*

(Walker), Costa Rica, Matina, 1912, Kirkaldy coll., F. Muir det.

Biology. Nymphs were found more frequently on unhealthy *E. crassipes* plants than on healthy plants in the same site. The same situation was also observed in the Upper Amazon River near Iquitos, Perú, and in Pantanal, Mato Grosso do Sul, Brazil (H. A. Cordo and M.C.H., unpublished). Adults and eggs were frequently found on healthy plants.

All nymphs from one oviposition emerged almost at the same time and tended to remain together, but jumped and dispersed when disturbed. In undisturbed laboratory conditions, they also tended to stay grouped on the lamina; each nymph was observed surrounded by waxy hairs (Fig. 6a). The late instars became more solitary and fed in the mid-part of the petiole. Adults were found in the upper part of the leaves frequently on the base of lamina. The mean developmental time for the nymphal stages at 25°C was 33.75 d (nymph I: 6.3 d, $n = 23$, SD:0.8/nymph II: 4.4d, $n = 20$, SD:0.7/nymph III: 6.6d, $n = 14$, SD:0.7/nymph IV: 6.2, $n = 13$, SD: 1.0/nymph V: 10.3, $n = 13$, SD: 1.5) (Sacco and M.C.H., unpublished).

Oviposition Behavior. At the onset of oviposition females cut a V-shaped operculum in the epidermis of the petiole by using the strong first valvulae of the ovipositor (Fig. 6b); the ovipositor is then inserted obliquely in the tissue digging a hole as deep as its entire length (it was observed that the reflected inward apex of the dorsal lobe of the gonoplocia acts as lead of the ventral lobe during the oviposition). The female then pulls out the ovipositor and inserts all pairs of valves together and lays one egg (1.4 by 0.5 mm) (Fig. 6c). At the end the operculum is sealed with the tip of the ovipositor. The whole process lasts ≈ 1 min per egg. The successive punctures in an oviposition are located in two or four rows along the petiole (Fig. 6d); females were observed to lay eggs moving either up or down the petioles. If a female was disturbed when ovipositing she could stop the process

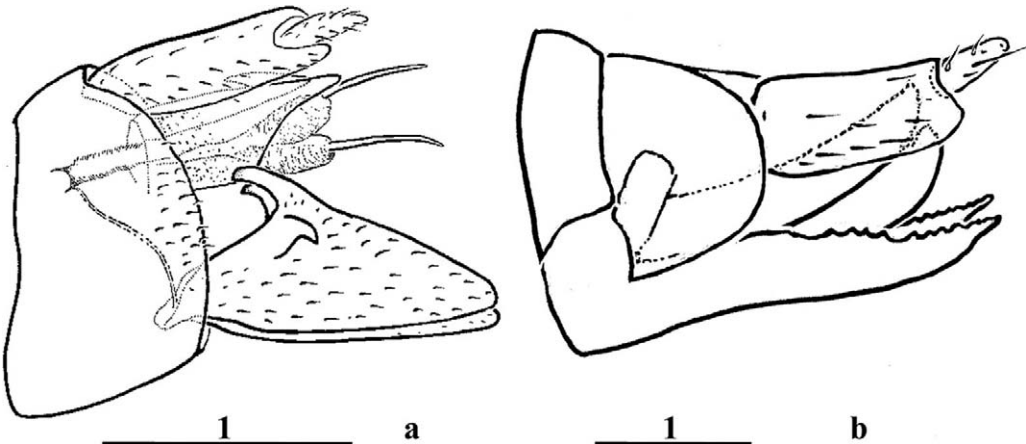


Fig. 5. Terminalia of *Taosa paraherbida* Muir. (a) Male, left lateral from specimen labeled Colombia, Lake Sapatozoa, Chiriguana District, C. Allen, VIII-IX-1924, Muir det. (b) Female, left lateral of paratype, British Guiana, Blairmont, F. X. Williams col., IX-X-1923. (BMNH collection). (Scale lines = 1 mm).

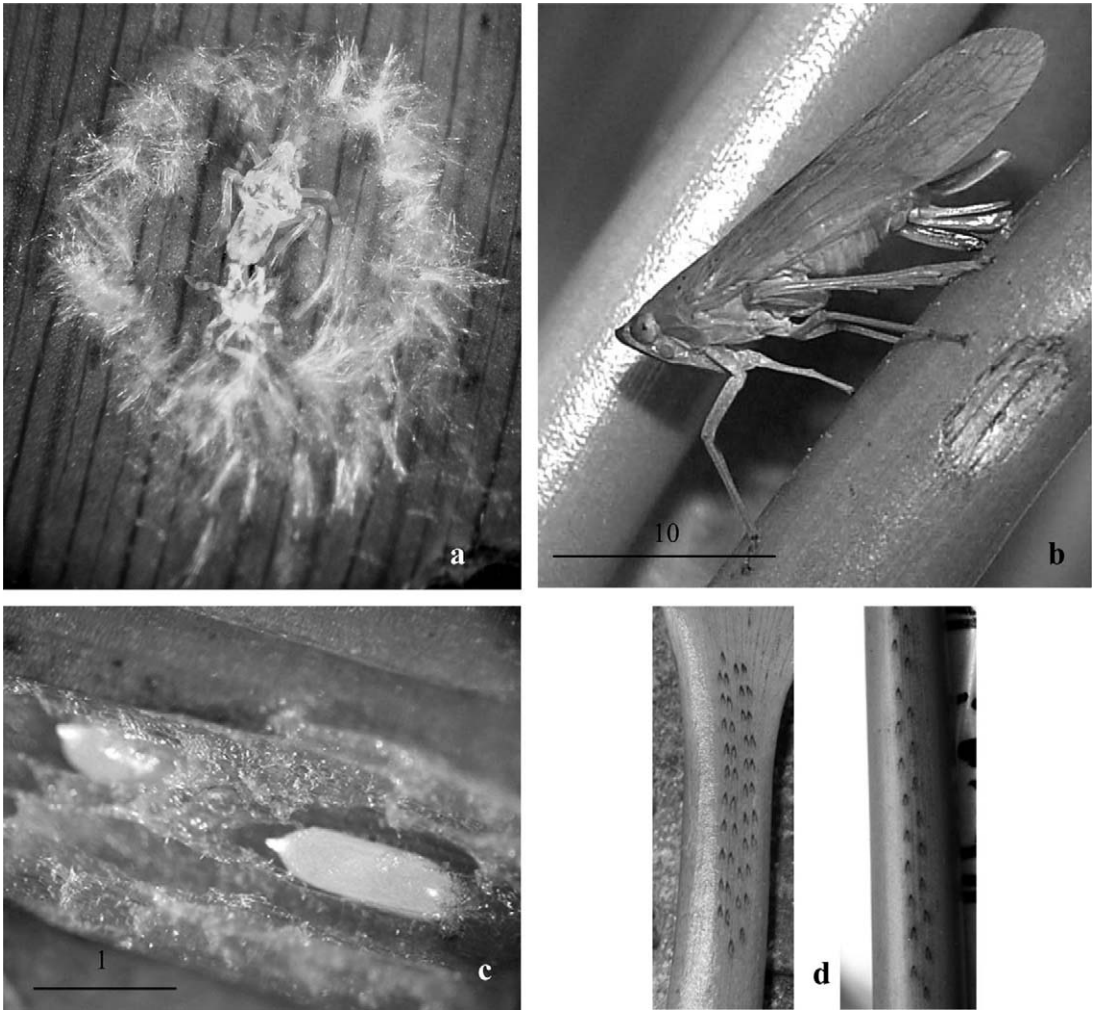


Fig. 6. *Taosa (Cuernavaca) longula* sp. nov. (a) Nymph in a waxy hairs circle. (b) Female cutting the operculum at the beginning of the oviposition. (c) Eggs inserted (dissected epidermis). (d) Ovipositions. Left, four rows of opercula; right, two rows of opercula.

and move to another place to continue laying eggs. Ovipositions are located in the upper half of the petioles. During the process, the females displayed feeding probes on the tissue. Females lay a mean number of 70 eggs per oviposition (range, 29–137; $n = 20$ ovipositions).

Notes. Although in the earliest studies *T. inexacta* was mentioned as a frequent species on *E. crassipes* in the Americas, this research has shown that, not only all of the specimens of *Taosa* captured on water hyacinth in Argentina belong to *T. (C.) longula* sp. nov. but also that other species—not identified yet—coexist in the same habitat in the upper Amazon River. We also noticed very little intraspecific variation in color and morphology among the hundreds of live *T. (C.) longula* handled throughout the years. At present, ecological studies to evaluate the role of *T. (C.) longula* as a candidate for the biocontrol of water hyacinth are being conducted in the SABCL in collaboration with MLPA.

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